DOCUMENT RESUME

ED 311 023 SP 031 473

AUTHOR Thomson, W. Scott
TITLE Three Selected Factors Affecting Performance Assessment of Teaching Using a Research-Based Observation Instrument.
PUB DATE 89
NOTE 25p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Administrator Characteristics; Elementary Education; Evaluation Criteria; Interrater Reliability; *Performance Factors; *Principals; *Sex Differences; Teacher Behavior; Teacher Characteristics; Teacher Effectiveness; *Teacher Evaluation

ABSTRACT

Three contextual factors, the gender of the principal, the choice of subject matter used for the demonstration of competence, and number of years of teaching experience, have been shown to have an effect on the outcome of teacher evaluation. The annual evaluations of 521 elementary personnel using the Florida state-mandated single assessment were investigated. Significant differences were recorded in initiating instruction, presenting instruction, and managing student conduct when examined from the reference point of the gender of the principal. Significant differences were recorded in managing student conduct when examined from the reference point of the subject matter used for the demonstration of competence. Significant differences were recorded in communicating with students when examined from the reference point of teachers' years of experience. A qualitative follow-up study of the principals identified distinctive differences in professional preparation and career patterns between the 5 male and 10 female elementary principals in the study. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED311023

THREE SELECTED FACTORS AFFECTING PERFORMANCE ASSESSMENT OF TEACHING USING A RESEARCH-BASED OBSERVATION INSTRUMENT

W. Scott Thomson, Ph.D.
Assistant Professor
Department of Education
Elon College
Elon College, NC 27244

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

W. S. Tompson

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

CS031475

THREE SELECTED FACTORS AFFECTING PERFORMANCE ASSESSMENT OF TEACHING USING A RESEARCH-BASED OBSERVATION INSTRUMENT

Summary of the Study

Purpose of the Study The purpose of this study was to determine whether the outside factors of the gender of the principal, the choice of subject matter used for demonstration of competence, or years of teacher experience have an effect on scores from Areas Two, Three, Four, and Five of the Leon County (Florida) Teacher Assessment Process (LCTAP)(Appendix 1).

Literature Review Early research efforts were focused on the personal characteristics and traits of individuals who entered the teaching profession (Ryans, 1960; Barr, et al., 1961). The emphasis has shifted to observing teacher behaviors in the classroom (Medley, 1977; McKenna, 1983; Rosenshine, 1976; Good, 1979; Brophy, 1979; Stallings, 1983). Many variables of teacher behavior have been investigated and most researchers recognized that additional studies must be undertaken to further clarify possible factors, both internal and external, that affect the environment in which teacher measurement and evaluation take place.

A constant theme underlying the literature pertaining to elementary

principalships was that females as principals are under-represented in proportion to their numbers in the classroom (Hemphill et al., 1961; Fishel & Pottker, 1977; Gross & Trask, 1975; Tanner & Ebers, 1985). No study supported the notion that men either possess characteristics that make them more desirable as principals or that they are, in fact, more effective as elementary principals. Most investigators concluded that women are better suited as instructional leaders, possessing the specific interpersonal skills necessary to work with both teachers and superiors, and with outsiders as well (Hemphill, et al., 1961; Fishel & Pottker, 1977; Gross & Trask, 1976; Tanner & Ebers, 1985). Several investigators pointed to the need for further research to clarify the impact of leader sex as a variable in teacher effectiveness studies (Brown, 1979; Tanner & Ebers, 1985)

The findings of investigators (Hughes, 1959; Ryans, 1969; Adams, 1971; Dickson, Wiersma, & Jurs, 1984) are consistent when subject matter, or content, is used as a variable to examine teacher behavior. Good (1979) points to the conclusions reached by researchers during the 1950's and 1960's that teachers mediate the effects of a particular curriculum (p. 53). General agreement on these conclusions may explain the absence of studies

which use subject, or content, as a variable in research on teacher effectiveness. Only recently (Dickson, Wiersma, & Jurs, 1984; Tanner & Ebers, 1985) has this issue been revisited by investigators interested in teacher effectiveness.

The conclusions reached by researchers concerning teacher experience and its influence on teacher evaluation appeared to be mixed (Tadlock & Nesbit, 1984; Osmond, 1978; Christner, 1981). The findings showed that experienced teachers excel in certain behaviors that require wisdom and experience to refine (Getzells & Jackson, 1963; Adams, 1971; Dickson, Wiersma & Jurs, 1984). They are at a disadvantage when the behaviors become specific, and need to be "technically" demonstrated (Getzells & Jackson, 1963; Ryans,1960). The variance of the scores reflecting the behavior of experienced teachers is narrow compared to that of beginning teachers. Beginning teachers score higher on evaluation instruments, but the variance of their mean scores is wide (Florida Coalition for the Development of a Performance Measurement System, 1983). The impact of years of teaching experience on mean assessment scores has been indicated, but how much it influences these scores varies from study to study, and may be a function of instrument-dependence (Dickson, Wiersma

& Jurs, 1984).

Method. There were three statistical hypotheses evaluated in this study. They were: (1) There are no true mean differnces between teacher's scores on the LCTAP based on the gender of the pricipal. (2) There are no true mean differences between teacher's scores on the LCTAP based on the subject selected to demonstrate competency. (3) There is no correlation between years of experience and teacher's mean scores on the LCTAP.

The subjects were all of the elementary teachers who were evaluated using the Leon County Teacher Assessment Process (LCTAP) during the 1984-1985 school year. There were 521 teachers in the sample. Data for all 521 existed concerning the subject taught to demonstrate competence. Data for 478 teachers existed for the areas of gender of principal and years of experience. The researcher collected the data for the three areas using the personnel files and evaluation records located at each elementary school and at the Leon County Personnel Office. The data were recorded on the Leon County Assesment Process Data Collection Form which was created and approved for this research project. The number of subjects was adequate for the preset alpha, beta and ES values.

The Leon County data consisted of the 1984-1985 teacher's observations and were additionally coded with the data collected for this research project. The county furnished technical assistance and terminal access to the Northwest Regional Data Center to make this research possible. Student's t-tests were conducted on the data to determine if there were any significant differences between teachers' assessment scores based on the gender of the principals (male/female). A one-way Analysis of Variance (ANOVA) was conducted on teachers' assessment scores based on the choice of one of six subject areas used to demonstrate competency. Results were judged to be statistically significant if the probability of the data occurring was less than or equal to the preset alpha = .05 for both the t and F tests as well as the following correlation test. A separate Pearson Product-Moment Correlation Coefficient was conducted on teacher's assessment scores versus the number of years of teacher's experience. Analyses were conducted on the data utilizing the Statistical Package of the Social Sciences (SPSS^X) programs.

After these analyses were conducted, additional questions arose concerning the principals involved in the sample, and the choice of the subject used to demonstrate competence. Further analyses were conducted

by listing and comparing the principals' years of administrative and elementary classroom teaching experience (Appendix II and III). The subjects taught to demonstrate competence were then tabled across Areas, relative to mean scores (Appendix IV and V).

Summary of Findings

Results of the Student's t-test for principal's gender and teachers' mean scores were significant. There were differences in teachers' mean scores in each of the four Areas between male and female principals. Male principals observed and coded more positive behaviors than did female principals on a ratio of almost two to one. Teachers' mean scores were higher under male principals than under female principals in every Area, Two through Five. There was a greater variance in teachers' mean scores under male principals than under female principals.

The data revealed differences in the principals' employment histories, particularly where actual classroom teaching experience was concerned. All of the female principals had extensive experience as elementary classroom teachers, while only one of the male principals had taught at the elementary level. Most of the female principals had 16 or more years of administrative experience at the elementary level, while three of the male

principals had less than 10 years of similar experience. These employment history factors could contribute to the differences in the teachers' mean scores and variances between the two groups.

The results of the ANOVA test to determine the effect of the decision of subject taught to demonstrate competency revealed a statistically significant difference only in Area Five: Managing Student Conduct ($F=2.275$, $p=0.046$). Those teachers selecting either Language Arts or Mathematics, the two basic skills subjects, recorded the highest mean scores.

The Pearson Product-Moment Correlation Coefficient indicated a significant, albeit low positive correlation between teachers' mean scores and teachers' years of experience ($r=.1236$, $p=.007$) for Area Four: Communicating With Students. Data from Areas Two, Three, and Five showed no such significant correlation.

Discussion

Principal Gender and Teachers' Mean Scores.

It appeared that there was a difference in coding criteria between male principals and female principals. Male principals appeared to have a more liberal interpretation of the coding manual than did female

principals. Male principals' interrater reliability was less than that of female principals as reflected by the differences in variances between these two groups in every Area, Two through Five. As a group, female principals recorded variances that were half of those of male principals, in every Area, indicating that interrater reliability, or within-group agreement of coding criteria, was higher for female principals than for male principals.

Principals' experience may be a factor in these differences, for this sampling population. Both the actual classroom teaching experiences and the durations of administrative experiences of the female principals may have contributed to both the lower mean scores given by female principals, and to the higher within-group agreement of coding criteria which resulted in lower variances than those of male principals.

Both the differences in variances, and the behaviors of the variances, are sufficient grounds for this researcher to question the robustness of the test. The variances are noticeably different for each group (male/female) within each of the areas, and differ between areas, as well. The variances also appear to rise and fall in a nonlinear fashion along with the means. For these reasons this researcher is extremely cautious about

any generalizations beyond the sample population that might be attempted.

Subject Taught to Demonstrate Competence. Language Arts and Mathematics were the predominate choices of teachers to demonstrate competence. The mean scores of teachers who chose Language Arts and Mathematics were higher than those of teachers selecting other subjects in every Area, Two through Five. However, these differences were significant only in Area Five. The formal and highly structured methods often utilized in teaching the basic skills of Language Arts and Mathematics appear to permit the exhibition of more of what the LCTAP defines as positive, or effective, behaviors by the teacher in the management of student conduct (Area Five). Teacher performance in Language Arts and Mathematics curriculums has occupied a large portion of the research used to demonstrate the effectiveness of generic models of teaching behavior used to develop measurement systems such as the Florida Performance Measurement System (FPMS), from which the LCTAP was derived (Florida Coalition for the Development of a Performance Measurement System, 1983). It may be expected, based on this research, that Language Arts and Mathematics would produce superior mean scores, which occurred in this research.

Years of Teacher Experience and Teachers' Mean Scores. With the exception of Area Four: Communicating With Students, there appeared to be no correlation between the number of years of experience a teacher has and their mean score on the Leon County Teacher Assessment Process (LCTAP). It was difficult to determine whether this result stemmed from the nature of the sampling population, or from the reliability of the instrument used to collect the information. Research in this area is mixed as to the impact of either age and/or experience on measurement and evaluation of teacher performance.

Practical Implications

Principal Gender and Teachers' Mean Scores. Sex of the principal was a significant variable on this research-bound teacher observation instrument, the Leon County Teacher Assessment Process (LCTAP), and must be addressed when comparisons of teachers' mean scores are made between schools. There were differences between interrater reliability both within and across groups of principals. Increasing interrater reliability through training to reduce variance both within the male principal group and between the male and female principal groups would possibly effect a decrease in variances.

Subject Taught to Demonstrate Competence. Evaluators should take into account the subjects selected by teachers to demonstrate competency when interpreting the results of these teachers' evaluations. Subject selected appeared to make a difference in the teachers' mean scores, across all Areas, to differing extents. A procedure may need to be established to account for the differences in mean scores that exist between different subject areas. This is particularly necessary for evaluating teachers who select alternative strategies for instruction which deviate from the more structured methods of instruction emphasized by the basic skills approach.

Teachers' Years of Experience and Teachers' Mean Scores. Teachers' years of experience did not appear to be a factor, with respect to mean scores, for this population in any Area except Area Five: Communicating With Students. Within Area Five, principals' expectations may need to be raised or lowered with certain teachers, based on experience. For the evaluation of performance which emphasizes teacher questioning and direction giving skills, teachers' experience can be a factor in demonstrating competence.

Suggestions for Further Research

Based on the findings of this study, the researcher makes the recommendations for further research. Further research on the principals' use of the Leon County Teacher Assessment Process (LCTAP) coding manual and the coding criteria contained within the coding manual are recommended. These recommendations are based on the differences in teachers' mean scores both within the male principals' group and between male principal and female principal groups. Research on the possibility of cross-gender interaction between principals and teachers is recommended. This may provide further insight into why male principals code more positive behaviors than do female principals. It was not possible to investigate this interaction in the current study due to the limited cell sizes contained within the sample. Research on the effect of previous classroom teaching experience upon administrative ability to effectively evaluate classroom teachers is also recommended. Additionally, an identical study with a different sampling population should be conducted.

References

Adams, R. S. (1971). A sociological approach to classroom research. In I. Westbury & A. A. Bellack (Eds.), Research in classroom processes: Recent developments and next steps (pp. 101-118). New York: Teachers College Press.

Barr, A. S., Worcester, D. A., Abell, A., Beecher, C., Jensen, L. E., Peronto, A. L., Ringness, T. A., & Schmid, J. (1961). Wisconsin studies of the measurement and prediction of teacher effectiveness: A summary of investigations. Wisconsin: Dembar Publications, Inc.

Brophy, J. E. (1979, October). Teacher behavior and student learning. Educational Leadership, 37(1), 33-38.

Brown, S. M. (1979). Male versus female leaders: A comparison of empirical studies. Sex Roles, 5(5), 595-611.

Christner, C. A. (1981, April). The J. R. syndrome: Administrator bias in teacher evaluation. (Report No. EA 014 024). Los Angeles, CA: Annual Meeting of the American Educational Research Association. . (ERIC Document Reproduction Service No. ED 207 229)

Dickson, G. E., Wiersma, W., & Jurs, S. (1984, April). A comparison of teaching performance as measured through observation of student teachers and experienced teachers. (Report No. SP 024 407). New Orleans, LA: Annual Meeting of the American Educational Research Association. (ERIC Document Reproduction Service No. ED 244 935)

Fishel, A., & Pottker, J. (Eds.). (1977). Performance of women principals: A review of behavioral and attitudinal studies. Sex bias in the schools: The research evidence. Cranbury, NJ: Associated University Presses, Inc.

Florida Coalition for the Development of a Performance Measurement System. (1983-1984). Teacher evaluation study: Norming study, generic competence revison, feedback proposal, cognitive examinations, and specialized domains. Tallahassee, FL: Special Appropriation 339A Special Category, Teacher Educaiton Program from the General Revenue Fund.

Florida Coalition for the Development of a Performance Measurement System. (1983). Domains: Knowledge base of the Florida performance measurement system. Tallahassee, FL: State of Florida, Department of Education.

Getzels, J. W. & Jackson, P. W. (1963). The teacher's personality and characteristics. In N. L. Gage (Ed.), Handbook of research on teaching (pp. 506-582). Chicago, IL: Rand McNally and Company.

Good, T. L. (1979, March-April). Teacher effectiveness in the elementary school. Journal of Teacher Education, 30(2), 52-64.

Gross, N. & Trask, A. E. (1976). The sex factor and management of schools. New York: John Wiley & Sons.

Hemphill, J., Griffiths, D., Frederiksen, N., Stice, G., Iannaccone, L., Coffield, W., & Carlton, S. (1961). Dimensions of administrative performance. Columbia University: Teachers College and Educational Testing Service.

Hughes, M. M. (1959). A research report: Assessment of the quality of teaching in elementary schools. Utah: University of Utah.

McKenna, B. H. (1983, April). Context effects in teacher evaluation. (Report No. TM 830 324). Montreal, Quebec: Annual Meeting of the American Educational Research Association. (ERIC Document Reproduction Service No. ED 230 581)

Medley, D. M. (1977). Teacher competence and teacher effectiveness. Washington, D. C.: American Association of Colleges for Teacher Education.

Osmond, P. K. (1978, January). Teacher assessment of supervisory evaluations. (Report No. SF 016 330). Wayne State College: Master's Thesis. (ERIC Document Reproduction Service No. ED 200 514)

Rosenshine, B. (1976, Spring). Recent research on teaching behaviors and student achievement. Journal of Teacher Education, 27(1), 61-64.

Ryans, D. G. (1960). Characteristics of teachers. Washington, D.C.: American Council on Education.

Stallings, J. A. (1983, February). Implications from the research on teaching for teacher preparation. Nashville, TN: George Peabody College and Vanderbilt University.

Tadlock, J. & Nesbit, L. (1984, November). The relationship of teacher evaluation scores generated by a process-product evaluation instrument to selected variables. (Report No. EA 017 418). New Orleans, LA: Annual Meeting of the Mid-South Educational Research Association. (ERIC Document Reproduction Service No. ED 252 931)

Tanner, C. K. & Ebers, S. M. (1985, May-June). Factors related to the beginning teacher's successful completion of a competency evaluation. Journal of Teacher Education, 36(3), 41-44.

1/85

LEON COUNTY SCHOOLS
TEACHER ASSESSMENT PART II
OBSERVATION CHECKLIST

Name _____ Subject/Lesson _____

Date _____ Observer _____

AREA 2: INITIATING INSTRUCTION

Descriptions	Demonstrated	Not Observed	Needs Improvement
2.1 Uses Time Effectively			
2.1.1 Begins classwork promptly			Delays starting lesson
2.1.2 Shifts activities without delay			Delays starting new activity
2.1.3 Provides activities and attends students			Students wait for instruction/assistance
2.1.4 Materials are in order			Disorganized, unprepared materials
2.2 Reviews Subject Matter			
2.2.1 Beginning review of previous lesson			Begins instructions with no review/orientation
2.2.2 Orients students to classroom activities			
2.2.3 Summary within lesson/ end of lesson			Starts new topic without summary
2.3 Makes Task Attractive			
2.3.1 Verbal enthusiasm			Loud, shrill, monotone or inaudible voice
2.3.2 Task oriented challenge			
2.3.3 Smiles, eye contact, body movement			Lethargic/dead-pan expression

White Principal Yellow Teacher

AREA 3: PRESENTING INSTRUCTION

Descriptions	Demonstrated	Not Observed	Needs Improvement
3.1 Lesson Management			
3.1.1 Describes purposes for activities			
3.1.2 Indicates change of topics or activities			Changes topics without transactions
3.1.3 Lectures on subject matter			Unrelated talk
3.1.4 Questions students for practice or comprehension check			Extended lecture
			Topic change without comprehension check
3.1.5 Provides independent/ choral/unison practice			Repetitive individual practice
3.1.6 Ignores irrelevancies/ interruptions			Reacts to irrelevancy or interruptions
3.2 Concept Treatment			
3.2.1 Definition, examples non-examples given			Definitions only
			Examples only
3.2.2 Distinguishes related concepts			
3.2.3 Application of principle/ rule/cause-effect			
3.2.4 Emphasizes important points			Scrambled or disconnected talk/digressions
			Uses vague and ambiguous words
3.2.5 Develops value judgment criteria			

APPENDIX I

8/22/83

LEON COUNTY SCHOOLS
TEACHER ASSESSMENT PART II
OBSERVATION CHECKLIST

Name _____ Subject/Lesson _____

Date _____ Observer _____

AREA 4: COMMUNICATING WITH STUDENTS

Concept/Indicators	Demonstrated	Understood	Needs Improvement
4.1 Uses Questioning Techniques			
4.1.1 Low order questions			Non-academic questions
4.1.2 High order questions			Multiple questions
4.1.3 Pauses before soliciting answers to higher order questions			
4.1.4 Poses question-selects responder			Selects responder - poses questions
4.1.5 Alerts class - single response			Unison alerting - unison response
4.1.6 Alerts non-responders			Selects responders in sequence Overdwells with one responder
4.2 Responds to Student Talk			
4.2.1 Acknowledges/restates a student response			Ignores student response
4.2.2 Specific praise for correct response			Overuse of general/ nonspecific praise
4.2.3 Provides explanation of incorrect response			Negative response without explanation
4.2.4 Probes or amplifies response			Harsh feedback to incorrect response
4.2.5 Asks for peer response/ discussion			
4.2.6 Clarifies response or redirects discussion			Accepts inarticulate responses without clarification
4.3 Directs Student Work/Activities			
4.3.1 Short, clear, non-academic directions			Overdwelling on directions
4.3.2 Clear, sequential academic directions for classwork/ homework			Redundant/fragmented directions Assigns seatwork/ homework without directions
4.3.3 Checks comprehension of seatwork/homework tasks			Directs student to task without asking for questions
4.3.4 Sets time/date for checking work			Time/date for completion not stated or clear
4.3.5 Checks errors or gives feedback on classwork/ homework			No or delayed feedback on practice or homework assignments

8/22/83

LEON COUNTY SCHOOLS
TEACHER ASSESSMENT PART II
OBSERVATION CHECKLIST

Name _____ Subject/Lesson _____

Date _____ Observer _____

AREA 5: MANAGING STUDENT BEHAVIOR

Concept/Indicators	Demonstrated	Understood	Needs Improvement
5.1 Makes/Practices Rules			
5.1.1 Specifies rules/ procedures			Need for rules but not specified
5.1.2 Clarifies rules/ procedures			Rules not clear or misunderstood
5.1.3 Practices rules/ procedures			
5.1.4 Reprimands rules/ procedures infractions			Does not correct rules/ procedures infractions
5.2 Monitors Student Behavior			
5.2.1 Simultaneous task attention			Ignores other students needing help
5.2.2 Simultaneous task/ behavior attention			Ignores deviancy and continues task Ignores task while engrossed in deviancy
5.2.3 Circulates and assists students			Remains at desk/ inaccessible to students
5.2.4 Smooth student movement			Prolonged or distracting student movement
5.3 Responds to Inappropriate Behavior			
5.3.1 Stops deviant behavior			Inappropriate behavior not dealt with
5.3.2 Stops worse behavior			Corrects lesser deviancy
5.3.3 Clearly and firmly corrects appropriate student			Corrects onlooker or wrong student
5.3.4 Suggests alternative/ appropriate behavior (task focus)			Uses rough or angry correction Uses approval-focus correctively
5.4 Praises Behavior			
5.4.1 Praises specific behavior			General praise
5.4.2 Praises on task behavior			
5.4.3 Low key/ quiet praise			Loud praise
5.4.4 Contingency/conditional praise			
5.4.5 Authentic/warm/ variety praise			Criticism

APPENDIX II

Descriptive Information on the Principals

Males

#	Age	Years of Administrative Experience	Elemen. Teaching Experience
1	46	3	0
2	37	6	8
3	45	5	0*
4	54	20	0**
5	63	34	0***

* 6 yrs. middle school social studies
** 3 years 7th grade mathematics
*** 1 yr. high school mathematics

APPENDIX III

Females

#	Age	Years of Administrative Experience	Elemen. Teaching Experience
1	53	17	13
2	46	14	8
3	44	17	4
4	56	16	17
5	44	8	10
6	55	6	18
7	61	17	14
8	64	17	13
9	63	17	19
10	61	18	21

Administrative male mean experience x = 13.6 yrs.
Administrative female mean experience x = 14.7 yrs.
Elementary teachers male mean experience x = 1.6 yrs.
Elementary teachers female mean experience x = 13.7 yrs.

APPENDIX IV

Breakdown Concepts by Subject Taught

Description of Subpopulations

Criterion Variable Area Two
Broken Down by Subject Taught
(n=500)

Value Label

For Entire Population

	Subject Taught	Mean	Std. Dev.	Cases
1	Language Arts	20.6468	14.047	235
2	Mathematics	21.5604	14.8370	91
3	Social Studies	16.3125	12.4511	16
4	Science	18.0000	13.5808	33
5	Special Education	16.6000	11.2405	40
6	Other Areas	18.9647	12.9573	85

Criterion Variable Area Three
Broken Down by Subject Taught
(n=495)

Variable Label

For Entire Population

	Subject Taught	Mean	Std. Dev.	Cases
1	Language Arts	22.5776	19.4516	232
2	Mathematics	25.2111	22.0854	90
3	Social Studies	18.8750	14.1038	16
4	Science	19.4848	13.3232	33
5	Special Education	18.2250	14.2496	40
6	Other Areas	20.0952	18.2761	84

APPENDIX V

Criterion Variable Area Four
Broken Down by Subject Taught
(n=505)

Variable Label

For Entire Population

	Subject Taught	Mean	Std. Dev.	Cases
1	Language Arts	47.0553	29.5879	235
2	Mathematics	46.8280	28.2102	93
3	Social Studies	36.6250	11.9604	16
4	Science	37.9697	16.6367	33
5	Special Education	39.8837	25.1833	43
6	Other Areas	36.9059	27.3111	85

Criterion Variable Area Five
Broken Down by Subject Taught
(n=498)

Variable Label

For Entire Population

	Subject Taught	Mean	Std. Dev.	Cases
1	Language Arts	27.5150	21.7789	233
2	Mathematics	26.4505	20.1010	91
3	Social Studies	13.3846	8.8274	13
4	Science	17.1515	12.3898	33
5	Special Education	23.4286	19.3153	42
6	Other Areas	23.1977	20.8653	86